Livestock Sector on the Move

National trends in farm numbers and animal units offer some insight into structural changes of the livestock sector. However, regional and local trends can differ substantially from the national averages and, from a water quality perspective, data on local conditions may be necessary when designing policies to control nutrient flows to the environment.

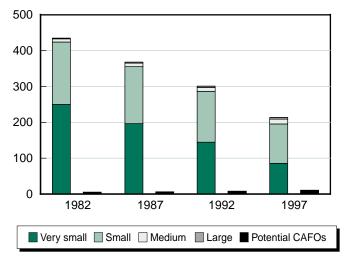
National Farm Numbers Decline as Animal Units Grow

The number of farms with confined animals declined from 435,000 in 1982 to 213,000 in 1997 (fig. 1). The decline occurred in the very small (less than 50 animal units) and small (50-300 AU) size groupings. During the same period, medium-sized operations (300-1,000 AU) grew by 4,400 farms to account for about 6 percent of all confined livestock farms in 1997. Meanwhile, large farms (more than 1,000 AU) more than doubled to almost 4,000 farms, or 2 percent of all confined livestock operations.

The decrease in the number of farms accompanied a 10-percent increase in the number of confined animal units (fig. 2). A decline in AU on very small farms (from 4.4 million in 1982 to 1.6 million in 1997) and on small farms (from 14.9 million to 11.1 million) was

Figure 1

Confined livestock farms, by size class, 1982-97
1,000 farms

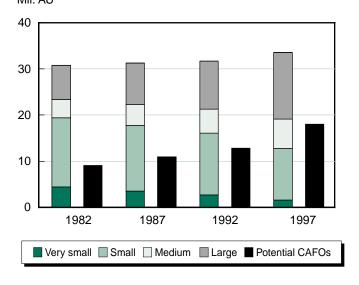


Source: Economic Research Service, USDA.

Figure 2

Confined animal units, by size class, 1982-97

Mil. AU



Source: Economic Research Service, USDA.

more than offset by growth on medium-sized farms (from 4 to 6.4 million) and, especially, large farms (from 7.4 to 14.5 million). The increase in total AU occurred because there are more large farms, not because the average large farm increased in size. Martinez (1999) and McBride (1997) discuss many of the reasons behind the industrialization of animal production, which leads directly to the growth in large operations.

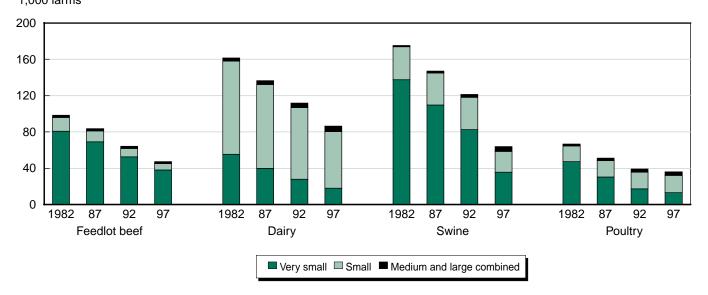
The dominance in the number of very small and small confined animal farms holds for all animal types over time (fig. 3). In 1997, there were more confined dairy operations (86,350) than any other type, though these were still down 87 percent from 1982. (Prior to 1997, swine farms were most numerous.) Very small and small farms accounted for 93 percent of dairy farms and 92 percent of swine farms in 1997. The number of farms with feedlot beef was less than half its 1982 level in 1997, with 96 percent of these very small or small. The poultry sector experienced the smallest decline in farm numbers over 1982-97, and again, smaller farms dominated: almost 90 percent of confined poultry farms had fewer than 300 AU (fig. 3).

Despite the decline in total numbers, the share of farms with each animal type changed relatively little from 1982 to 1997. The share of farms with dairy increased about 6 percent, mostly since 1992, mirroring the 8-percent decline in relative share for swine.

Figure 3

Confined animal farms by species and size class, 1982-97

1.000 farms



Source: Economic Research Service, USDA.

Potential CAFO Farms and Animal Units

Farms with animals over the threshold for an NPDES permit under the Clean Water Act deserve special attention since they may be currently regulated. Our estimation procedure for determining concentrated animal feeding operations (CAFOs) is based on current regulations and the number of animals without considering farms with exemptions. Currently, about 2,500 CAFOs actually have NPDES permits (U.S. EPA, 2001).

The number of potential CAFO operations more than doubled from 1982 to 1997, increasing from about 5,000 to 11,200 (126 percent), or from 1 to 5 percent of all operations (fig. 1). During the same period, the number of AU on these farms almost doubled from 9.1 million (30 percent of total confined AU) to 18.0 million (54 percent) (fig. 2). Nationally, the average number of AU on each potential CAFO did not increase over the period; the gain in AU on potential CAFO farms was due entirely to the increase in the number of potential CAFO operations.

The distribution of potential CAFO farms by animal type underwent substantial change over 1982-97 (fig. 4). There were declines in the share of feedlot beef operations from 47 to 17 percent of potential CAFO farms and growth in swine (21 to 39 percent) and poultry (24 to 33 percent). In 1997, the 4,370 potential CAFO swine operations and 3,760 potential CAFO

poultry operations accounted for 72 percent of all potential CAFO operations.

Regionally, Animal Feeding Shifts to Prairie Gateway and Southern Seaboard

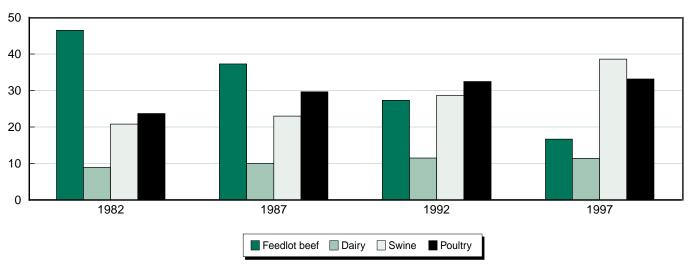
The national figures describe a 50-percent decline in total confined livestock farms and increasing animal numbers, resulting in greater concentration. However, confined livestock operations are not evenly distributed across the Nation. We use a regional assessment of county data to provide more detail and to demonstrate geographic shifts in the industry. The regional presentation is based on ERS Farm Resource Regions, which depict geographic specialization in production of U.S. farm commodities (USDA, 2000b).

The Heartland experienced the greatest decline in the number of confined livestock farms (96,000) over 1982-97. Despite this 56-percent decline, the Heartland contained 74,000 confined animal farms in 1997, 35 percent of the Nation's total (fig. 5). The Northern Crescent, while starting with fewer confined animal farms, lost 50,000 from 1982 to 1997, a 44-percent decline. Still, it contained 63,000 confined livestock farms, 30 percent of the U.S. total in 1997. All other regions experienced declines of 40 to 60 percent.

Animal unit numbers do not follow the farm trend of consistent declines (fig. 6). The Prairie Gateway and Southern Seaboard increased by 2 million (40 percent)

Figure 4
Potential CAFO farms, by animal type, 1982-97

Percent



Source: Economic Research Service, USDA.

and 1.7 million (70 percent) animal units over 1982-97. These increases were partially offset by declines in the Northern Crescent and Heartland of 17 and 6 percent. All other regions increased their confined AU numbers or showed just slight declines. In 1997, the Heartland had almost 25 percent of the Nation's AU, followed by the Prairie Gateway with 21 percent and the Northern Crescent with 17 percent.

Even regional trends can mask some important local differences, evident by county (fig. 7).¹⁰ The greatest numbers of confined animals are located in a band

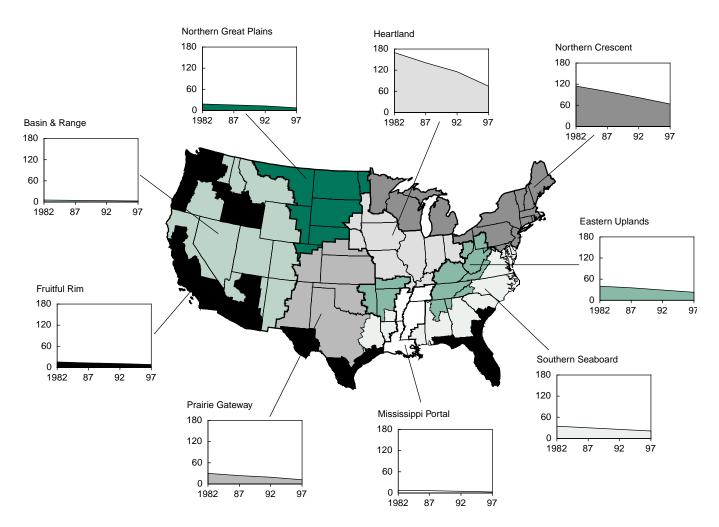
from southeastern New Mexico through the Plains States to eastern Nebraska and then eastward through Iowa to the Great Lakes. Other areas with large

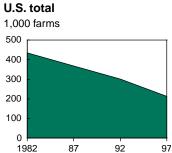
Almost every State has at least 1 county with more than 10,000 animal units.

numbers of confined animals include the Northeast, mid-Atlantic, California's southern Central Valley, western Arkansas, and far Northwest areas. Almost every State has at least 1 county with more than 10,000 animal units (fig. 7).

¹⁰ Some counties are shown aggregated to protect confidentiality, but numbers of counties refer to actual counties. The maps used in this report have a visual bias caused by the size variability among counties. Large counties and counties combined to prevent disclosure tend to be placed in higher classes because there are more units in large counties, often concentrated in one part of the county. Maps of units per unit area correct this bias, but do not convey information on magnitudes.

Figure 5 Confined animal farms by ERS region, 1982-97

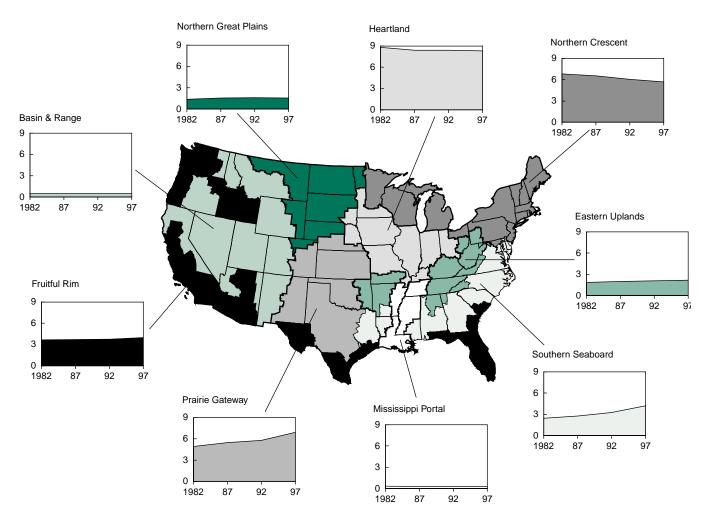




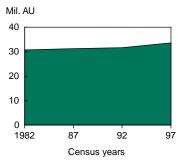
Source: Economic Research Service, USDA.

Census years

Figure 6 Confined animal units by ERS region, 1982-97

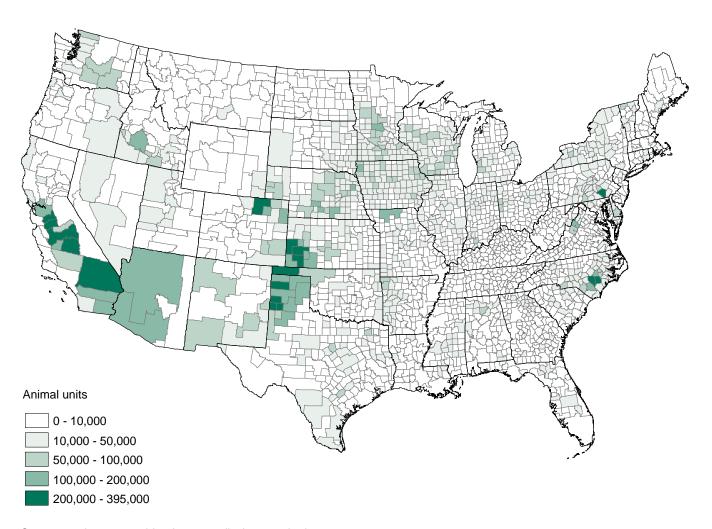


U.S. total



Source: Economic Research Service, USDA.

Figure 7
Location of confined animals, 1997



Some counties are combined to meet disclosure criteria.

Source: Economic Research Service, USDA.